WHAT IS CLAIMED IS:

sub a1 1. An optical transmission system comprising:

an optical fiber transmission line disposed between a transmitter for transmitting a signal of a predetermined wavelength and a receiver for receiving the signal, through which the signal propagates from the transmitter toward the receiver;

a dispersion compensating system for compensating for chromatic dispersion in said optical fiber transmission line;

a measuring system for monitoring variation in temperature of said optical fiber transmission line or variation of chromatic dispersion in said optical fiber transmission line; and

a control system for controlling a dispersion compensation amount of said dispersion compensator, based on the result of measurement by said measuring system.

2. An optical transmission system according to claim 1, wherein said measuring system includes a temperature sensor for detecting the temperature of said optical fiber transmission line.

3. An optical transmission line according to claim 1, wherein said measuring system includes a dummy fiber transmission line disposed along said optical fiber transmission line, a light source for emitting

monitor light of a predetermined wavelength into the dummy fiber transmission line, and a photodetector for receiving the monitor light having propagated through the dummy fiber transmission line, and wherein said control system calculates a variation amount of chromatic dispersion in said optical fiber transmission line, based on the result of detection of light quantity by the photodetector.

4. An optical transmission system according to claim 2, wherein said temperature sensor includes an optical fiber temperature sensor disposed along said optical fiber transmission line.

5. An optical transmission system according to claim 1, wherein said dispersion compensating system shifts the wavelength of the signal from said transmitter to the longer wavelength side or to the shorter wavelength side, thereby compensating for the variation of chromatic dispersion due to variation in temperature of said optical fiber transmission line.

6. An optical transmission system according to claim 1, wherein said dispersion compensating system includes a dispersion compensator disposed on a signal light path from said transmitter to said receiver, and wherein said control system controls the dispersion compensation amount of said dispersion compensator according to a variation amount of chromatic dispersion

in said optical fiber transmission line.

7. An optical transmission system according to claim 6, wherein said dispersion compensator includes a dispersion compensating optical fiber.

8. An optical transmission system according to claim 6, wherein said dispersion compensator includes an optical fiber grating.